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A MULTIDIMENSIONAL APPROACH TO CHILD POVERTY IN THE PHILIPPINES

by

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ABSTRACT

Poverty is generational and can affect families and societies as a whole when lost opportunities are no longer regained during the formative period of a child's life cycle. For instance, child malnutrition can lead to poor health, lower productivity, and slower learning in adult life. These can lead to capability failures such as stunting which could prove irreversible later in life. The poor children of today will be tomorrow's impoverished parents. This low human development promotes intergenerational transfers of poverty. The 2009 official poverty statistics for the basic sectors, for example, reveals that poverty incidence for children in the Philippines reached 35.1 per cent. While a good number of studies have been conducted on child poverty, almost all used income as a sole measurement. Hence, in this paper, we attempt to measure the 'intensity of under-five child poverty' in various years through the lens of Sen's capability approach, which aims to expand people's freedom in order to achieve valuable functionings. We applied the Multidimensional Poverty Index (MPI) developed by Alkire and Foster's (2007) using the 1993 to 2008 data of the Demographic Health Survey (DHS). Our results show that the parameters are robust and that under-five children are deprived in at least two dimensions. This indicates the need for a national database that includes child well-being and deprivation indicators to ensure more targeted child-protection programs and a more efficient use of limited government resources.

Key Words: Under-five Child Poverty, Multidimensional Poor, Capability Approach, Deprivation

Disclaimer: The analyses and views expressed in this paper are those of the authors and do not reflect the views of their current affiliations.

1. Introduction

Poverty has various implications for children with consequences to health, wellbeing, development, and life chances. It exposes children to various forms of risks that could have negative outcomes to their cognitive, social, and emotional development. Poverty also reflects the extent to which children as they grow into adulthood can participate fully in the life of a community. Thus, early childhood is important from a capability perspective because functionings achieved during this period in a child's life determines future capabilities, including opportunities and freedom.

Children experience poverty differently from adults because while adult poverty can be temporary, childhood poverty can last a lifetime. There is urgency in addressing the consequences of child poverty since they impact a child's long-term development and productive capacity as an adult. It can also be passed on to future generations, which can exacerbate poverty and inequality in society.

Half of the world's children are below the international poverty line of $2 a day and there are more than eight million deaths of children (about 22,000 per day) although most of these

can be preventable[1]. Contributors to at least half of child mortality include hunger, malnutrition and lack of safe drinking water.

In the Philippines, poverty incidence is associated with high population growth, fertility and corruption that affect investments in human capital leading to lower school performance, poor health, and reduction of state capacity in providing effective child social protection. Child poverty can also lead to capability failures later in life.

The UNICEF Global Study on Child Poverty and Disparities[2] show that poverty incidence in rural areas is more than twice compared with children living in urban areas. About 7 out of 10 poor children are from rural areas. The regional pattern of child poverty indicators reveal that the same regions are ranked as consistently worse off compared to other regions. For instance, the poverty incidence of only 16% in the National Capital Region (NCR) is equivalent to 69% in the Autonomous Region in Muslim Mindanao (ARMM). Poverty rates are also seen to be higher in the Visayas and Mindanao regions although there are observed differences in poverty rates.

There are different kinds of approaches in measuring poverty. The income and consumption or expenditure analyses usually assumes equal sharing of resources of households and neglect the availability of infrastructure such as health, education, water and sanitation. This approach is also prone to technical problems in measuring child poverty in developing countries such purchasing power parity national comparisons, under-reporting biases, and other measurement errors. Since unidimensional measures of child poverty fail to effectively capture the extent of child wellbeing, multidimensional approaches that determine deprivation of basic human needs are better equipped to project developmental outcomes on health and education of children.

Poverty measurements that reflect the breadth and components of child poverty, identifying who is poor and considering the intensity of each child's poverty helps create tools that help policymakers mitigate or eliminate the deprivation and suffering of children. While long-standing debates have always focused on income poverty, the multidimensional approach to poverty lends a different set of policy responses that have a more lasting impact in child capabilities and deprivation. The multidimensional approach is practicable, based on internationally agreed standards and definitions, and is a unitary index that is easily decomposable.

This paper presents evidence on deprivation of Filipino children under-five in various dimensions. The next sections outline the various arguments related to child poverty measurements, the methodology employed in the study, including the findings related to the percentage of poor children and the national and regional figures in multidimensional headcount and intensity. It will also postulate on the dimensions with the highest contribution to child poverty in the Philippines from 1993-2008.

2. Arguments on Child Poverty Measurements

Recognizing the importance of analyzing child poverty, various measurements have been developed through the years to aid in improving policies and programmes for children. Ben-Arieh (2008) shows the evolution in the approaches to child wellbeing, including the conceptualization, definition, and measurement in children's deprivation. The various

[1] UNICEF, 'Child poverty and inequality: New perspectives' (New York: UNICEF, 2012), p. 1
[2] UNICEF and PIDS, *National report Philippines: A global study on child poverty and disparities* (Manila: UNICEF, 2010), p. 4

approaches to child poverty include the monetary poverty approach which is the most commonly used measure in identifying poor children living in low-income households; the basic needs approach; the rights-based approach, the social exclusion approach; the sustainable livelihood approach; and the capability approach. There is also the Corak approach which recognizes child poverty as a multifaceted phenomenon based on the poverty definition in the CRC.

The monetary approach uses income or expenditure as a proxy for other dimensions of poverty. Deaton and Paxson (1997) studied poverty among children and elderly in developing countries using South Africa as a case. They made used of the monetary approach by employing household total expenditure per capita (PCX), the standard best practice by the World Bank as their welfare measure. The study utilized LSMS and other surveys to determine how family size, composition and living arrangements interact with assumptions about needs in the measurement of poverty and living standards of different groups (Deaton and Paxson, 1997). They concluded among others, that there is a high likelihood of overstating the poverty incidence among children and understating poverty incidence among the elderly with the use of PCX as a measure of welfare.

Notwithstanding the importance of income and expenditure in poverty measurement, recent literature has explored other methodologies that respond to the limitations of the monetary approach in assessing child poverty.

The Young Lives project employed a questionnaire-based survey using participatory methods. It is a long-term study that seeks to improve the understanding of the causes and consequences of childhood poverty, tracking the lives of 12,000 children growing up in four developing countries over 15 years. Young Lives takes a multidimensional approach to poverty as a complex, dynamic phenomenon that is subject to both contextual specificity and multiple, interacting causes.

On a similar line, Fernandes et. al. (2011) aimed at resolving three methodological issues of existing child index namely, (a) short account for children's perceptions on their own well-being; (b) use of aggregated data; and (c) use of uniform weighting schemes that do not translate the real weights of individual indicators. Their empirical analysis introduced a weighted multidimensional index of child well-being that incorporates children's individual perceptions. The incorporation of subjective components led to a result which showed that the most relevant determinants of child well-being are variables related to the child parents such as education and professional status.

UNICEF's Global Study on Child Poverty and Disparities (2007) based on decentralized research and analysis in 40 countries examined linkages between child deprivations in eight dimensions: education, health, nutrition, water, sanitation, shelter, information, and income or consumption. The Global Study employed the Bristol methodology in measuring child deprivation and used data from the Multiple Indicator Cluster Surveys (MICS) and Demographic and Health Surveys (DHS). The methodology is a 'counting' approach to multidimensional poverty by identifying the poor according to the total dimensions deprived and reporting the 'headcount' or percentage of children identified as multi-dimensionally poor. The headcount poverty uses five degrees of deprivation (i.e. not deprived, mild, moderate, severe, and extreme), ranking children as absolutely poor if they suffered from two or more types of severe deprivation in basic human needs. Moreover, the study used a three-pronged approach to child poverty - (a) indistinguishable from overall poverty; (b) equating child poverty with poverty of families raising children; and (c) capturing individual child outcomes, bringing the non-material

aspects of poverty, and considering child well-being and deprivation to be 'different sides of the same coin.' However, the downside of using the Bristol methodology is that it does not calculate the extent of the average intensity, depth or severity of the deprivation.

3. Data and Methodology

3.1 Methodology

Contrary to the traditional and most widely used poverty measurement which is income and expenditure, we employ the multidimensional poverty index (MPI) developed by Alkire and Foster of the Oxford Poverty and Human Development Initiative (OPHI) in 2010 to come up with child poverty measurements. This gives us the opportunity to investigate other dimensions of poverty which income alone cannot capture. Saith (2005) posted that the grave danger posed by the income-poverty line approach is that it inevitably leads to a misidentification of the poor, and subsequently to the adoption of targeting, monitoring and evaluation criteria which are equally narrow, thus carrying many blind spots in the concept of deprivation into the operational phase of interventions.

The Alkire and Foster method is a new approach that aims to identify "who is poor" by taking into account the intensity of children's poverty. Alkire and Roche (2011) emphasized that child poverty measurement using MPI *"go beyond the headcount by taking into account the breadth, depth or severity of dimensions of child poverty. Once children are identified as poor, the measures aggregate information on poor children's deprivations in a way that can be broken down to see where and how children are poor."*

For our empirical analysis, we followed the following 12 steps of the Alkire and Foster (2007, 2011) method:

Step 1: Choose unit of analysis. We use the child as our unit of analysis given that the Demographic and Health Survey (DHS) provides a children's recode dataset.

Step 2: Choose dimensions. The choice of dimensions is crucial because this will determine the extent of poverty. Five means of selection are identified by Alkire and Roche (2011):

- *Ongoing deliberative participatory exercises that elicit the values and perspectives of stakeholders. A variation of this method is to use survey data on people's perceived necessities;*
- *A list that has achieved a degree of legitimacy through public consensus, such as the universal declaration of human rights, the MDGs, or similar lists at national and local levels;*
- *Implicit or explicit assumptions about what people do value or should value. At times these assumptions are the informed guesses of the researcher; in other situations they are drawn from convention, social or psychological theory, or philosophy;*
- *Convenience or a convention that is taken to be authoritative or used because these are the only data available that have the required characteristics; and*
- *Empirical evidence regarding people's values, data on consumer preferences and behaviors, or studies of what values are most conducive to people's mental health or social benefit.*

Refer to the section below which explains our choice of dimensions.

Step 3: Choose dimensional indicators. Two principles are considered for the choice of indicators namely accuracy (using as many indicators as necessary to guide policy) and parsimony (using a few indicators as possible for ease of analysis for policy). For our dimensional indicators, refer to Table 1 below.

Step 4: Set and apply deprivation cut-offs. A deprivation cut-off is the same as the poverty line. Each dimension has a deprivation cut-off. This determines whether a child is deprived or non-deprived on a particular dimension. We have set these cut-offs:

Table 1. Dimensional Indicators

Dimension	**Deprivation Cut-off**
Health	A child is classified as deprived in health if it did not receive at least one of the required vaccinations for under-five children.
Water	A child is classified as deprived in terms of access to safe drinking water if the sources of water are open dug well, developed spring and rainwater and other.
Sanitation	A child is deprived in terms of sanitation if the child uses one of the following: open privy, drop or overhang type, no facility at all and other.
Shelter	A child is deprived in terms of housing if it has one of the following floor materials: earth or sand, wood planks, palm or bamboo and other.
Electricity	A child is deprived of electricity if it does not have access to electricity.
Assets	Does not own any of the following: television, refrigerator, bicycle, motorcycle, car and other.

Step 5: Set and apply weights. Weights for each dimension should be determined. The weights reflect the importance of each dimension in the child poverty measures. In our case, we assigned equal weights (1/6) for all the dimensions as we deemed all dimensions equal in determining whether a child is poor or not.

Step 6: Count the number of deprivations for each child. Using equal weights, we calculated the weighted sum of deprivations of each child.

Step 7: Set the second cut-off (poverty cut-off). Employing equal weights, we have set the second poverty cut-off (k); this is a cut-off by which a child is deprived to be considered as multidimensional poor. We set our k=50 i.e. if the child is deprived in 3 out of the 6 dimensions, it is considered as multidimensional poor.

Step 8: Apply the poverty cut-off (k) to obtain the set of poor children and censor all nonpoor data. This means that all information on nonpoor children is replaced with zeros. After this censoring, focus will be on poor children and the dimensions where they are deprived.

Step 9: Calculate the headcount (H). We divided the number of poor children by the total number of children.

Step 10: Calculate the average intensity (A). According to Alkire and Roche (2011), A is the average number of (sum of weighted) deprivations a poor child suffers. We therefore, estimated A by adding the proportion of total deprivations each child suffers then dividing by the total number of poor children.

Step 11: Calculate the adjusted headcount (M0). We multiplied H and A to get M0.

Step 12: Decompose by group and breakdown by dimension. For this paper, we decomposed the data by region and analyzed the contribution of each dimension on M0 for each region.

3.2 Data

Our datasets are the children's (under age 5) recode data of the Demographic and Health Survey (DHS) of the Philippines for the years 1993, 1998, 2003 and 2008 compiled by the Monitoring and Evaluation to Assess and Use Results (MEASURE) DHS project. The sampling design of the DHS allows the disaggregation of spatial results to the regional level.

This study employs six dimensions of deprivation: health, water, sanitation, shelter, electricity, and assets. Based on the Convention of the Rights of the Child (CRC), health is one of the minimum components of a child's well-being. Access to water and sanitary facilities as well as shelter can have an impact on the health outcomes of children especially those under-five years of age. The study by Singh (2012) on urban India verified that the unavailability and deficiencies on housing, safe drinking water, and sanitation facilities may lead to high infant and child mortalities. Likewise, assets may determine the ability of households to provide for the needs of the child. Note that education and nutrition are not included due to these reasons: (a) for education, this research only deal with children under five years old and data on day care schooling is not available and; (b) for nutrition, not all datasets have indicators on nutrition thus, for consistency in the analysis this is drop from the list of dimensions.

Table 2 summarizes the deprivation indicators for each of the dimensions. The indicators were chosen on the basis of these points: (a) applicability in the Philippine context; (b) results of policy decisions; and (c) availability of data.

Table 2. Deprivation Indicators

Dimensions	**Deprivation Indicators**
Health	Vaccinations: BCG, DPT 1, DPT 2, DPT 3, POLIO 1, POLIO 2, POLIO 3, MEASLES
Water	Access to safe drinking water
Sanitation	Access to sanitary toilet facility
Shelter	Type of main flooring material
Electricity	Access to electricity
Assets	Ownership of household assets

4. Under-five child poverty (1993-2008)

4.1 Multidimensional child poverty: A national picture through the years

Table 3 shows the multidimensional child poverty index (M0), multidimensional headcount (H) and intensity of poverty (A) (based on k=50%) for the Philippines from 1993-2008. The data clearly illustrates that multidimensional child poverty has continuously decreased. The multidimensional child poverty index has reduced significantly from 40% in 1993 to 21% in 2008, the percentage of children who are poor from 56% to 32%, and the intensity of child poverty from 72% to 67% over the same time.

The same table illustrates the absolute variation or "the overall percentage of people who have lifted out of or have fallen into poverty" (Alkire et. al. 2011). Thus, intuitively this will also show us how much of the decrease in the multidimensional child poverty index can be attributed to the reduction in the percentage of poor children and how much can be credited to the lessening in the intensity of poverty. For all the three periods, the decrease is driven by a decline in both multidimensional headcount and intensity.

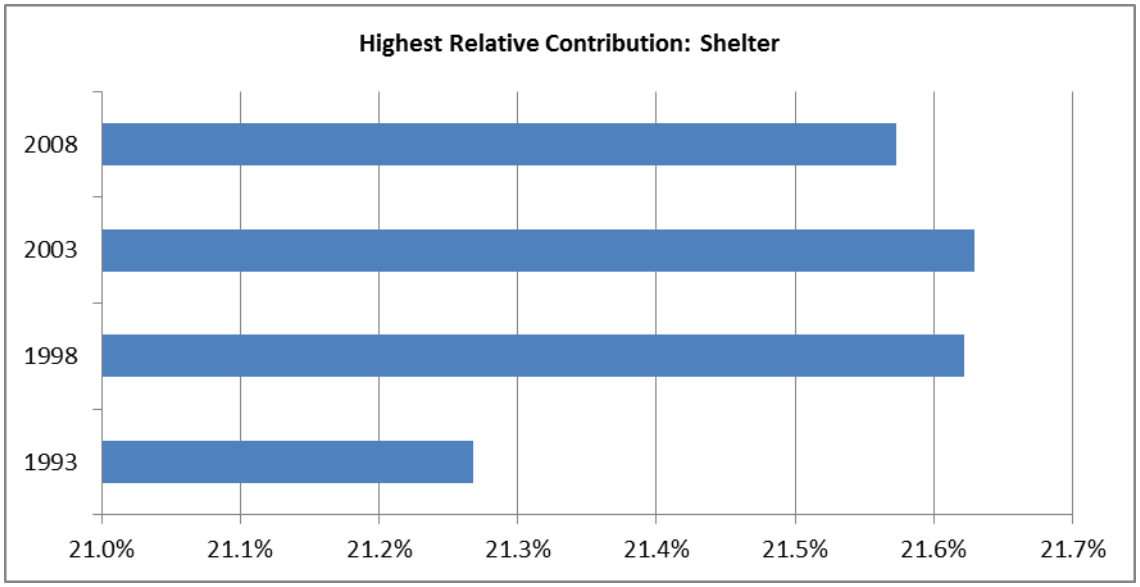
Table 3. Changes in national multidimensional child poverty, 1993-2008

	Multidimensional Child Poverty Index (M0)	Multidimensional Headcount (H)	Intensity of Poverty (A)
1993	0.398	0.556	0.715
1998	0.305	0.441	0.691
2003	0.260	0.379	0.684
2008	0.210	0.315	0.667
Absolute Variation			
1993-1998	-0.093	-0.116	-0.024
1998-2003	-0.045	-0.062	-0.007
2003-2008	-0.050	-0.064	-0.018

Note: Poverty cut-off is k=50%

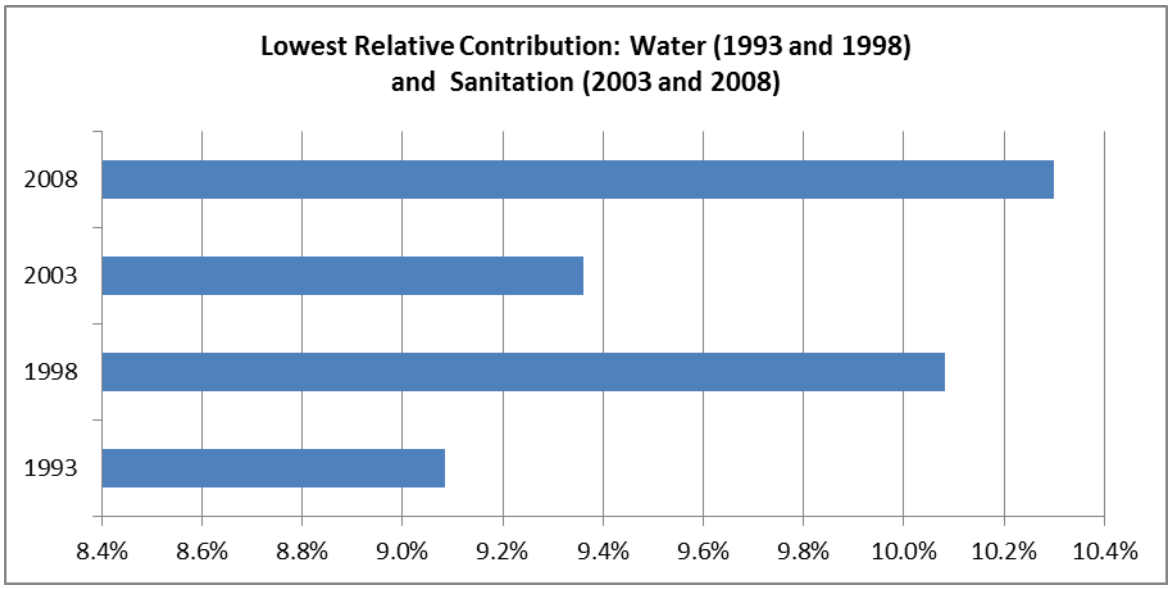
Decomposing the national M0, among the six dimensions, the shelter dimension has the highest relative contribution to multidimensional child poverty from 1993 to 2008 (see Figure 1). It is high at 21.6% in 1998 and 2003.

Figure 1. Dimension with the highest relative contribution to M0, 1993-2008



In contrast, the smallest relative contribution in M0 for 1993 and 1998 is the water dimension with only 9% and 10%, respectively; the sanitation dimension has the smallest contribution in 2003 (about 9.3%) and in 2008 (about 10.3%).

Figure 2. Dimension with the lowest relative contribution to M0, 1993-2008



4.2 Multidimensional child poverty: A regional picture

Figures 3, 4, 5, and 6 below summarizes the average M0, headcount and intensity at the regional level in 1993 at a poverty cut-off of 50%. Noticeable patterns in the multidimensional child poverty disaggregated by region from 1993 to 2008 are the following:

- All Mindanao and Visayan Regions experience high multidimensional poverty compared to the Luzon regions;
- Despite the diversity of geographical, economic, infrastructural, social and cultural conditions of each region, all experienced high intensity of multidimensional poverty. Even the regions in Luzon that have a relatively low MPI and percentage of poor children, the intensity of deprivations have been severe; and
- Overall, the child poverty profiles suggest that multidimensional poverty has been experiencing a decline.

Figure 3. Multidimensional child poverty measurements at k=50%, by region (1993)

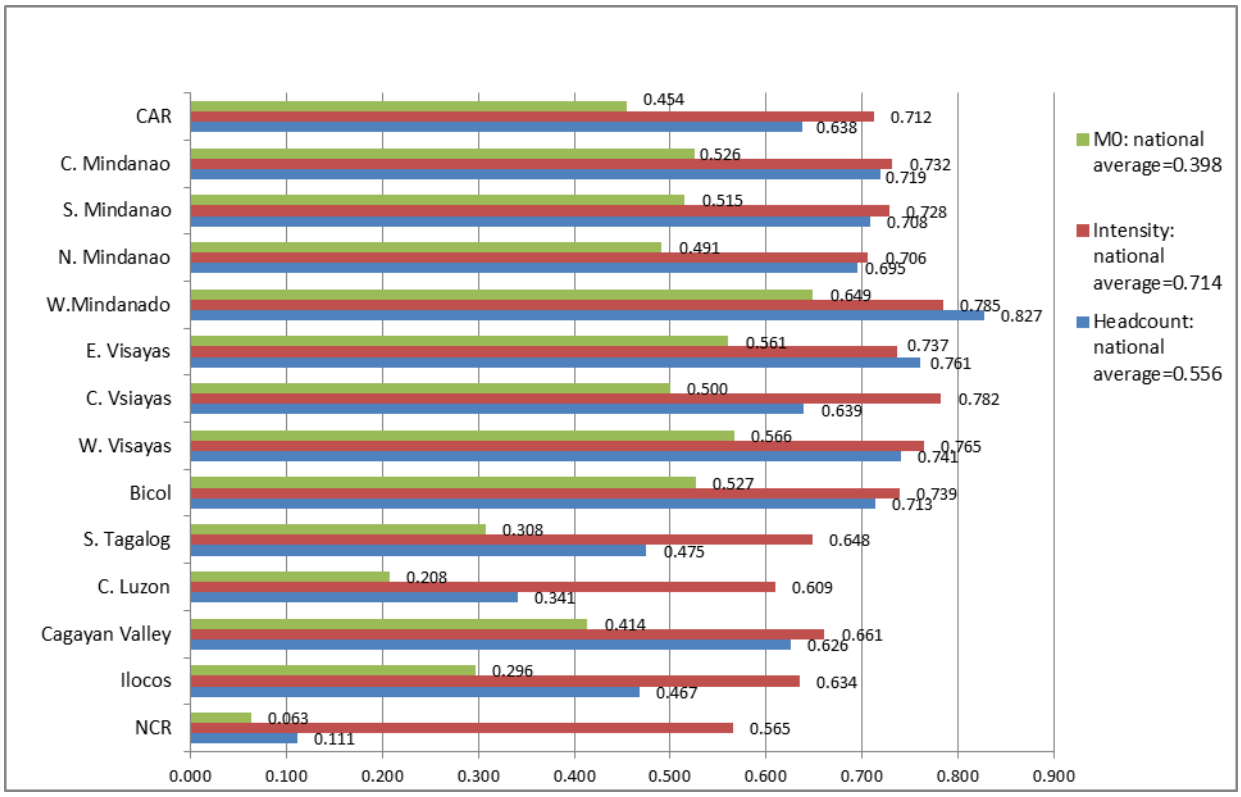


Figure 4. Multidimensional child poverty measurements at k=50%, by region (1998)

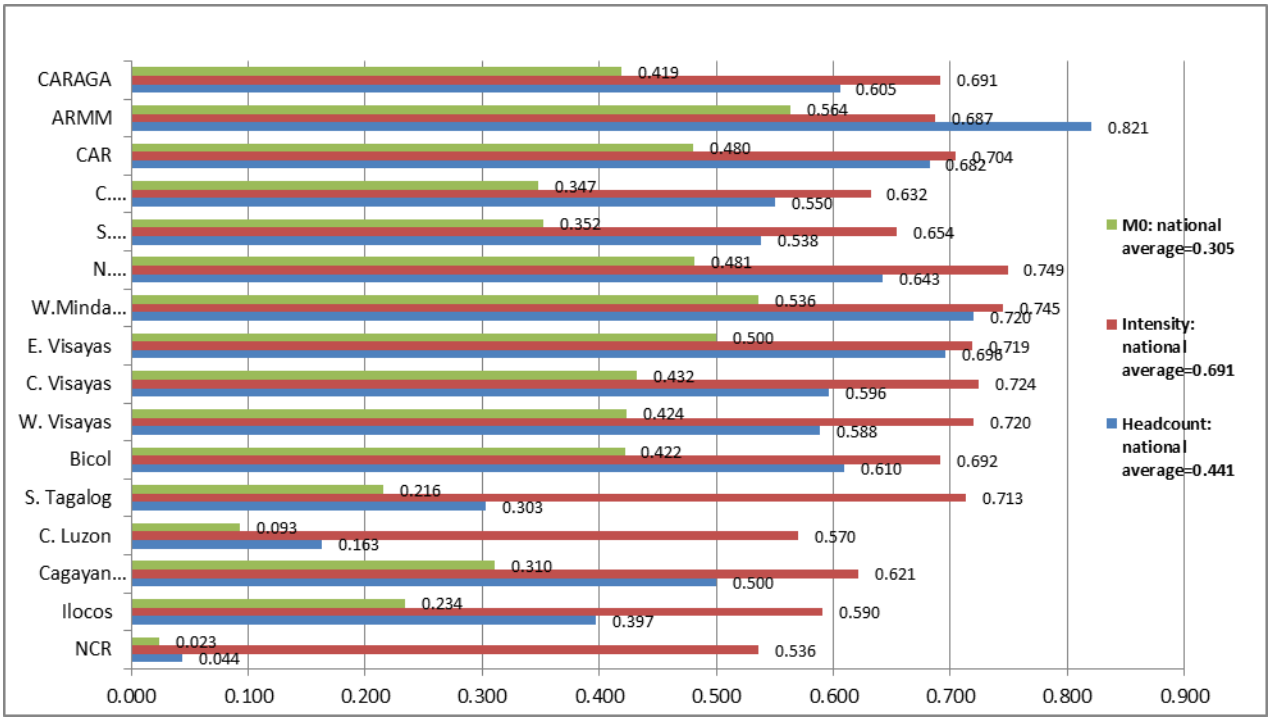


Figure 5. Multidimensional child poverty measurements at k=50%, by region (2003)

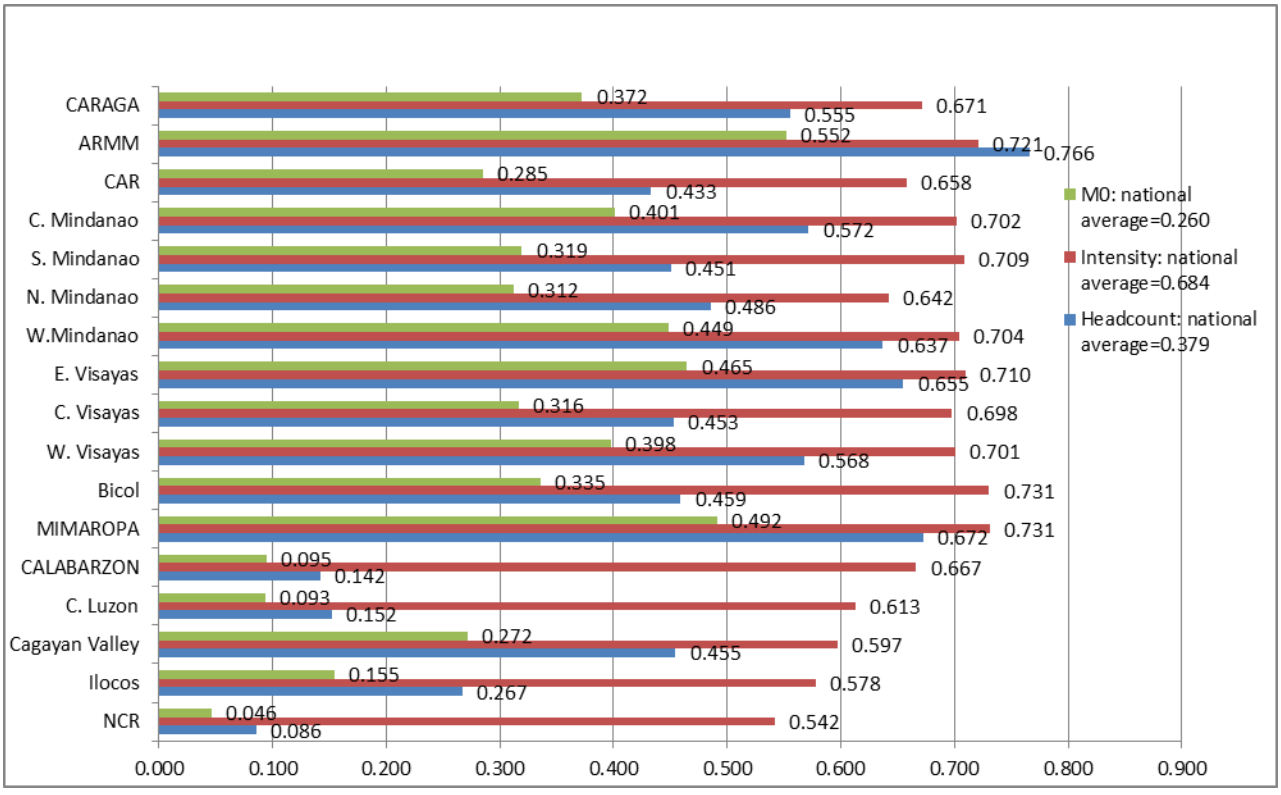
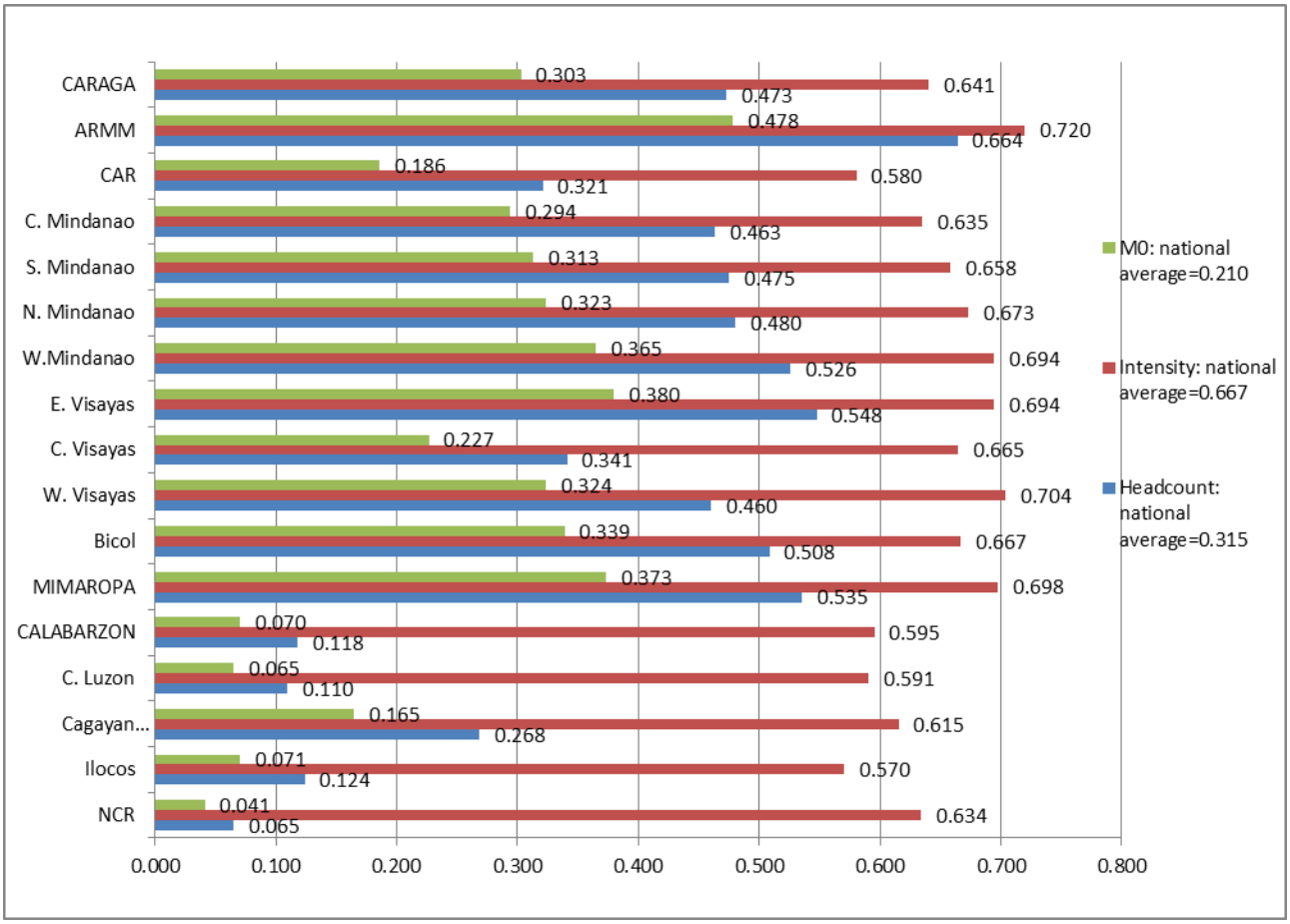


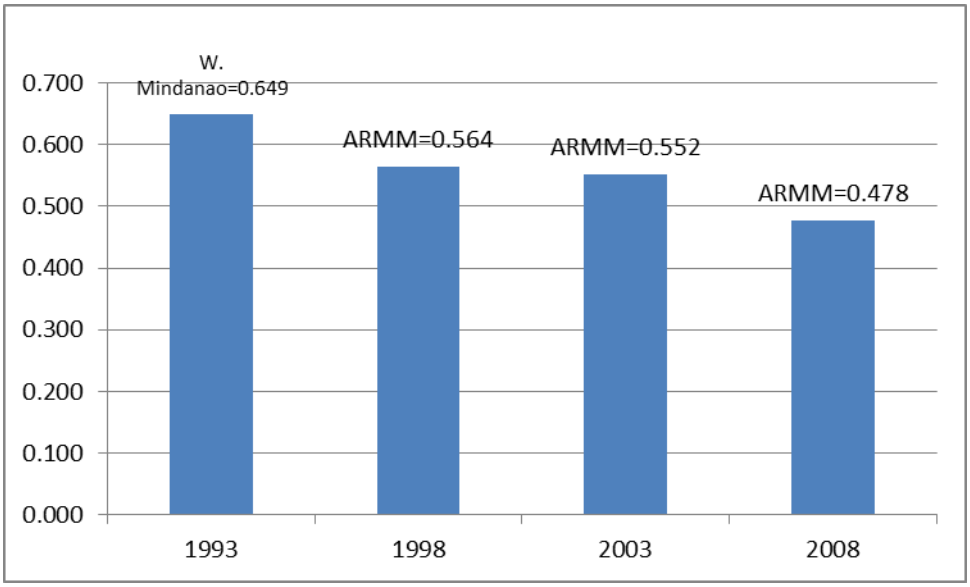
Figure 6. Multidimensional child poverty measurements at k=50%, by region (2008)



4.3 Region with the multidimensionally poorest children

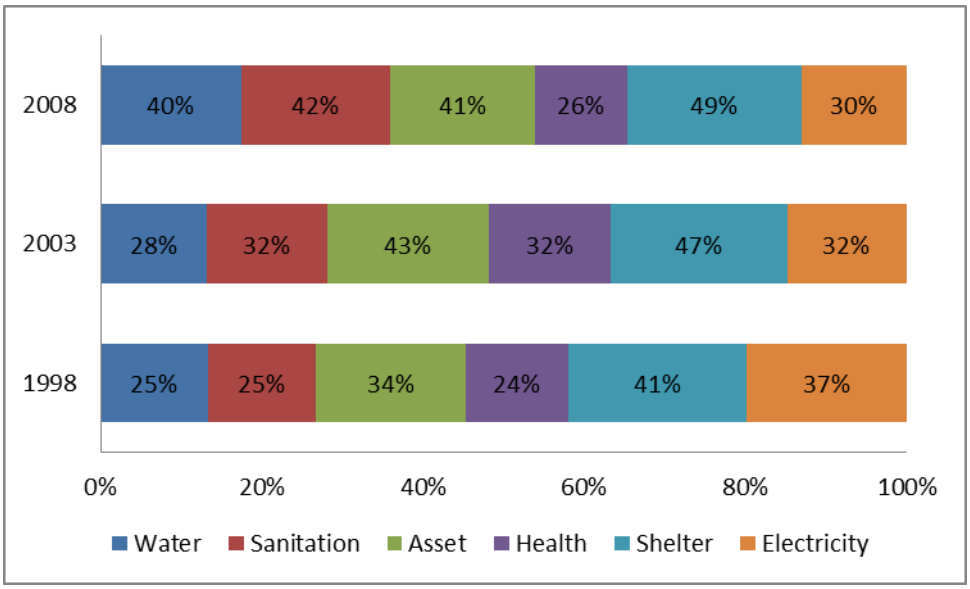
In 1993, Western Mindanao has the highest child MPI at 65%. But for three consecutive years, the Autonomous Region in Muslim Mindanao (ARMM) has the highest multidimensional child poverty index. The long-term child poverty and deprivation may be attributed to the long-standing armed conflict in the region. According to the World Bank (2013), armed conflicts in the region including the struggle of the Moro groups for self determination, communist insurgencies, and banditry, among others results to severe economic and social displacement that in turn leads to poverty. Although this is the case, the reduction in child poverty for ARMM has been notable with a reduction from 56% in 1998 to 48% in 2008.

Figure 7. Region with the highest M0, 1993-2008



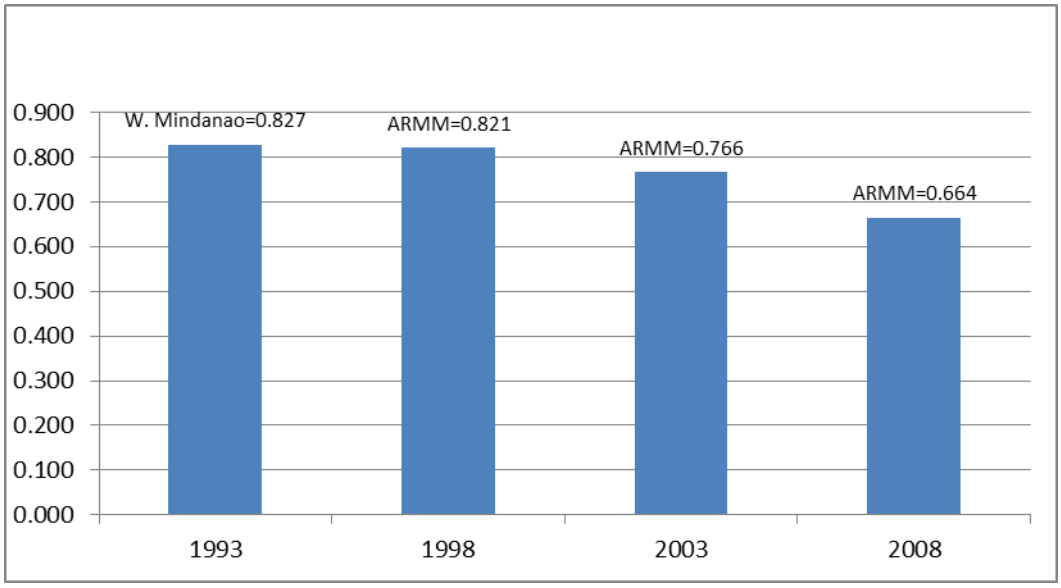
From 1998 to 2003, shelter has the highest contribution in the multidimensional child poverty in ARMM and this has been increasing continuously from 41% in 1998 to 49% in 2008. Thus it appears that there was much less progress in improving the housing conditions of children in the region. Despite the fluctuation on the share of health, it remained to have the smallest contribution for these years.

Figure 8. Decomposition of Relative Contribution of Dimensions to M0 (k=50%), ARMM, 1998-2008



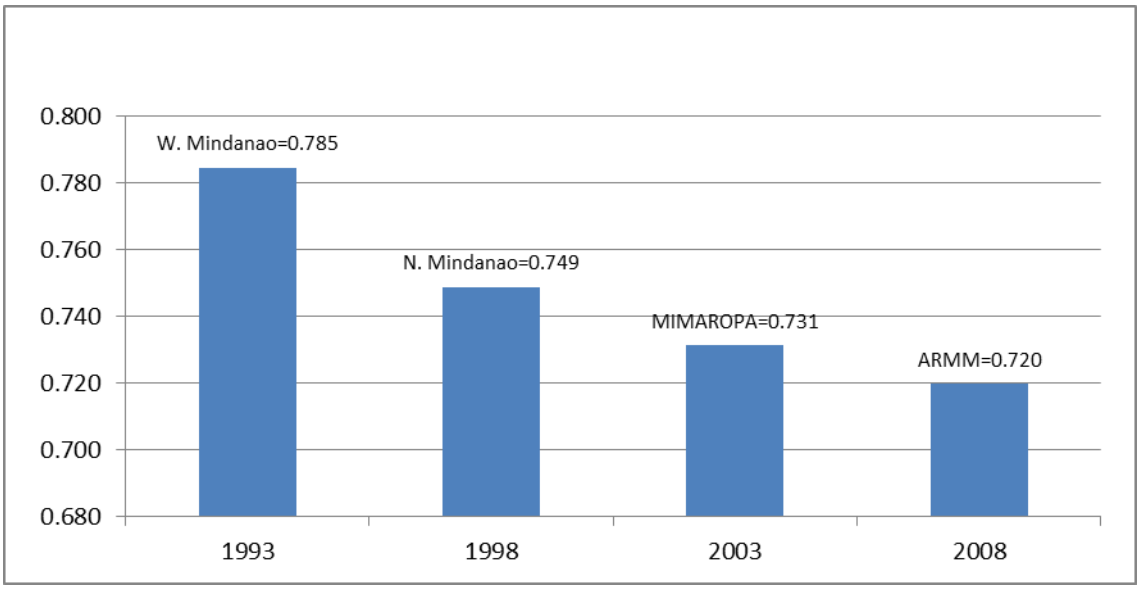
The result for of headcount is quite consistent with the findings on M0 (Figure 5). ARMM has the highest percentage of multidimensionally poor children for the three periods. Although the incidence has been decreasing, the percentage is still high at 66% in 2008.

Figure 9. Region with the highest headcount, 1993-2008



Remarkably, the results give a different picture when seen in the lens of intensity. It is only in 2008 that the intensity is higher in ARMM (Figure 6). During the earlier years the following regions are poorer with regard to intensity: Western Mindanao at 79% in 1993; Northern Mindanao at 75% in 1998 and MIMAROPA at 73% in 2003.

Figure 10. Region with highest intensity of poverty, 1993-2008



4.4 Robustness

Regardless of the cut off chosen, multidimensional poverty is observed to decline from 1993 to 2008. The robustness check verifies this.

The decline in children poverty index could be attributed to the stronger reduction in multidimensional headcount. Note however that in some cases when multidimensional headcount increased, child poverty also went up (a) between 1993 and 1998 in CAR; (b) between 1998 and 2003 in NCR, Central Luzon and Central Mindanao, and (c) between 2033 and 2008 in Bicol and Northern Mindanao. Notice also the increases in the intensity of poverty in Southern Tagalog, Northern Mindanao, NCR, Central Luzon, Bicol, Southern Mindanao, ARMM, Cagayan Valley and Western Visayas.

5. Conclusions and Policy Implications

Poverty remains to be one of the complex challenges that confront the area of policy-making. Often seen under the one-dimensional measure such as income, conventional poverty estimates are limited in scope and interpretation, given that poverty subsists in various forms and sectors within society.

With the introduction of Alkire-Foster method, however, the meaning of poverty becomes more understandable, flexible, encompassing, and precise. This refinement of measurement allows policy-makers to effectively identify the composition and breadth of poverty and utilize more appropriate policy responses.

As an estimation approach, the Alkire-Foster method, following the arguments raised by the Oxford Poverty & Human Development Initiative (OPHI)[3], provides a better framework of poverty estimation both for the government and the private sector. The advantages of utilizing such a methodology are outlined below.

- *Boosts other poverty measurements*. Multidimensional metrics can enrich other measures of poverty such as income. Income can be one of the dimensions within a multidimensional measure.
- *Facilitates methodological flexibility*. The nature of the Alkire-Foster method is suitable to varying conditions existing in the societies where it is applied. Varying cutoffs, indicators and dimensions can be defined appropriately. Aside from being a poverty measure itself, the method can also be used for monitoring and evaluation (M&E) as a tool to target beneficiaries of the of the 4Ps social protection program in the Philippines.
- *Allocates resources effectively*. The measurement can identify the poorest in the sector studied, including their severe deprivations. This information can prove essential in devoting resources where they appear to be most effective at reducing poverty.
- *Provides effective design of policies*. The decomposition of the Alkire-Foster method categorizes the deprivations that make up poverty, commonly found among and within sectors, ensuring policies that address the specific needs of these sectors.
- *Establishes inter-relationships among deprivations.* The Alkire-Foster method unifies different characteristics of poverty in a single comprehensible measure, showing interrelations among deprivations, helping determine possible poverty traps.

[3] http://www.ophi.org.uk/policy/

- *Validates impacts over time*. The Alkire-Foster method can be used as a quick tool to measure the impact of policies with a usually long gestation period. A good application would be the evaluation of the impacts of conditional transfer programs.

In the case of under-five child poverty presented in this paper, the results cover not only the multidimensional poverty index but also the multidimensional headcount and intensity of poverty, across regions and over time. The estimates clearly show improvement of children from 1997 to 2008.

However, the regional decomposition demonstrates that some regions such as ARMM experience high multidimensional poverty with shelter having the highest contribution in terms of dimension. These suggest the fragility and vulnerability of the regions in resolving the problem of child poverty within their respective domains.

A more desirable outcome therefore, is the consistency of the decline of under-five child poverty in the national and regional estimates. Hence, to achieve this synergy, decisive strategies need to be adopted. These include the enhancement strategies, program financing strategies, and intergovernmental strategies.

Enhancement Strategies

- Streamlining and establishing quality standards on various programs for child services, mindful of the flexibility in strategies for meeting local needs, which are necessary to elicit effective impacts;
- Establishing dual track programs and encouraging projects that strengthen families and child development.

Program Financing Strategies

- Coordination of national and local government unit expansion in public investment to equalize access to quality early childhood programs, and increase efficiency and effectiveness of programs and projects;
- Encouraging public-private partnerships (PPPs) in early childhood services to help alleviate local fiscal burdens.

National and Local Government Strategies

- Easing the administrative burdens involved in administering multiple public early childhood programs;
- Building community planning and responsibility for early childhood services.

Support systems have to be in place to ensure the success of any program or project geared towards children. There is a need for a strong financial support from the public sector as well as statistical offices that contribute towards ensuring informed and evidence-based policy making. Local government units also have the crucial responsibility of providing productive environments for constituents that can yield economic opportunities for households. In addition, hard and soft infrastructure is essential in ensuring speed of service delivery and boosting economic activity. Lastly, the local community management systems need to be developed to sustain childhood program in local communities.

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